

CATEGORY 400
STRUCTURES

SECTION 456 — ARCHITECTURAL TREATMENT

456.00 GENERAL. Provide Architectural Treatment on retaining walls to be constructed in locations as shown on the Roadway Plans. The type of architectural treatment shall be as specified in the Contract Documents under section 456.01. Form release agents, form stripping methods, patching materials, and construction procedures shall be mutually compatible with the surface finish and concrete stain to be applied. Architectural treatments not requiring form liners or stain shall conform to all applicable requirements including sample panels.

Form Liner. The form liner finish shall match the textured finish specified in the Contract Documents.

The form liner shall attach easily to the forming system, and shall not compress more than 0.021 ft when poured vertically at a rate of 10 ft/hr. The liners shall be capable of withstanding anticipated concrete pour pressures without leakage causing physical or visual defects. The liners shall be removable without causing concrete surface deterioration or weakness in the substrate.

Form liner butt joints shall be carefully blended into the approved pattern and finished off the final concrete surface. There shall be no visible vertical or horizontal seams or conspicuous form marks created by butt joining form liners. The finished texture, pattern, and color shall conform to the approved sample panel, and shall be continuous without visual disruption. The Engineer may reject portion of the structure for failure to comply with these requirements. Rejected portions of the structure shall be completely removed from the project at no additional cost to the Administration.

Prior to each pour, the form liners shall be cleaned and free of build-up. Each liner shall be visually inspected for blemishes and tears. Repairs shall be made in conformance with the manufacturer's recommendations, and shall not change the appearance of the final product.

Form liners shall be securely attached to forms in conformance with the manufacturer's recommendations, and with less than a 1/4 in. seam.

Form or Wall Ties. When form or wall ties are used that result in a portion of the tie permanently embedded in the concrete, submit the type of form ties to the Engineer for approval prior to use in this work.

Form Release Agent. The release agent shall be compatible with the surface finish and concrete stain to be applied. The release agent shall be applied in conformance with the manufacturer's recommendations.

Concrete Stain. The colors of the concrete stain shall reference Federal Standard 595 for colors as specified in the Contract Documents. The coloring agent shall be a penetrating stain mix, compatible color finish designed for exterior application on new or old concrete with field evidence of resistance to moisture, alkali, acid, mildew, mold and fungus discoloration or degradation. The coloring agent shall be breathable, allowing moisture and vapor transmission. Concrete stain shall be selected from a list of prequalified concrete stains that is maintained by the Office of Materials and Technology. Unless otherwise specified, two coats of concrete stain shall be applied in conformance with the manufacturer's recommendations and as directed by the Engineer.

When the concrete is at least 28 days old, surfaces to be stained shall be pressure washed with a pressure washer set at 3000 psi to remove laitance. The fan nozzle shall be held perpendicular to the surface at a distance of 1 to 2 ft. Abrasive blasting is prohibited. The completed surface shall be free of blemishes, discolorations, surface voids, and conspicuous form marks as approved by the Engineer. Correct any surface problems at no additional cost to the Administration.

Expansion Joint Material. When the Contract Documents include expansion joints, the joint material shall be finished so as to visually continue the simulated stone pattern uninterrupted. A sample of the colored expansion joint material shall be included in the sample panel for approval.

Shop Drawings. Prior to beginning any work for the concrete to receive the simulated stone finish, working drawings representing the full size of the unit shall be provided for the simulated stone form liner pattern. The working drawings shall be drawn at a scale sufficient to show the detail of all stone and joint patterns, and the layout of the finish pattern.

The working drawings shall be submitted to the Project Landscape Architect for approval. Any revisions to the working drawings shall be performed at no additional cost to the Administration.

Sample Panels. Workmanship shall be demonstrated by constructing an approved sample panel for the form liner type specified using approved form lining materials and surface coloring. Formwork including form or wall ties proposed for use and concrete placement for the sample panel shall be the same as that used for the finished structure.

The form liner used shall produce the same pattern that is intended for use on the finished structure. When the finished structure will contain vertical or horizontal form liner seams/joints, the sample panel shall include the same appropriate seams/joints. The sample panel shall be unreinforced concrete cast in the same position (vertically or horizontally) as will be the finished product to determine the surface texture resulting by use of the form liner. The minimum size of concrete sample panel shall be 6 in. thick, 4 ft wide and 4 ft high.

The sample panel approved by the Project Landscape Architect shall remain on the site as a basis for comparison to the structure. Samples rejected by the Landscape Architect shall be removed from the project and a new sample be submitted at no additional cost to the Administration.

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Sample Panel Digital Photograph Inspection. Provide color digital photographs of the sample panel (4 x 4 ft as specified in the Contract Documents). The photographs shall be supplied by e-mail or CD Rom at the time the Project Landscape Architect is notified of panel delivery to the project site. The photographs will be used in evaluating the acceptance of the finish, but will not replace or supercede the delivery of sample panels as required in the Specifications. The Administration reserves the right to make an on site inspection at any time, or to request additional photographs.

The digital camera shall have a minimum resolution of 3.1 megapixels, and all photographs shall be taken without the use of the camera's zoom features. All photographs shall be taken with the camera's line of sight being approximately perpendicular on the horizontal to the surface of the sample panel. This requirement shall be heeded throughout this procedure regardless of the orientation of the sunlight. Multiple photographs shall be taken with variations in the angle of the sunlight shining on the sample panel. This may be accomplished by rotating the sample panel so that the sunlight shines from almost directly behind the camera (90 degrees from the sample panel face), to a side lighting view where the sunlight shines on the surface from about 170 degrees from the sample panel face. Photographs shall be taken in approximately 15 degree increments, and be free of shadows from the camera and other foreign objects. The camera may be required to be plus or minus perpendicular to accomplish this requirement when the sun is shining on the sample panel at a 90 degree angle.

Additional photographs depicting the relief, colors, etc., may also be submitted provided that they conform to these requirements.

Photographs shall be taken so that the top and bottom of the sample panel takes up the full top and bottom of the camera's view screen without the use of the zoom feature. Included in each photograph shall be a card placed adjacent to the sample panel identifying the Administration's Contract Number, the supplier, the casting date for each panel; and a 1 x 6 in. black bar, a ruler, or other means of showing scale that is legible when viewing the photograph.

All photographs shall be taken in the presence and at the direction of the Administration's Inspector, and electronic copies made directly from the camera's memory device shall be submitted to them at the time of the inspection (enhancing or modifying the photographs in any way is prohibited). The Inspector will forward the information to the Project Landscape Architect for final approval. The certification with the photographs shall contain the following information:

- (a) Casting date.
- (b) Contract Number.
- (c) Description of the sample with file names for each sample.
- (d) Number of images sent.
- (e) Date and time the images were shot.
- (f) Panel serial numbers, or other identifying markings.
- (g) A certification that the panel has not been used on a previous project, that the panel is uniquely marked, and that the photographs were taken in their presence.

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Failure to produce legible electronic photographs in conformance with these requirements will be cause to delay the evaluation of sample panels/posts, which shall be at no additional cost to the Administration or any Contract time extension.

Architectural Treatment Type and Location. The type of architectural treatment and its location shall be as follows:

TABLE 456.00

ARCHITECTURAL TREATMENT			
STRUCTURE	TREATMENT	COLOR*	LOCATION
Cast-In-Place Concrete Retaining Wall	456.01	light and dark browns and greys	Entire wall FACE and ENDS below coping as detailed in the construction plans.
	456.01	medium brown	Entire wall COPING as detailed in the construction plans.

* Color of stain shall match that of the existing base of an existing wall face located along the Bethesda Crest Community property frontage immediately adjacent to the back side of concrete sidewalk on Southbound MD 355 (Wisconsin Avenue) and will be subject to approval by the Project Landscape Architect.